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(YOR.235)

REMARKS

Entry of this Request for Reconsideration is proper because it does not raise any new

issues requiring further search by the Examiner, narrows the issues on appeal, and is believed

to place the present application in condition for immediate allowance.

Allowable Subject Matter

Applicant gratefully acknowledges that **claims 3-5, 8, 9, 12-14, and 25** would be

allowable if rewritten in independent form. However, Applicants respectfully submit that all

of the claims (i.e., claims 1-25) are allowable, for the reasons set forth below.

Claims 1-25 are all the claims presently pending in the application.

A complete listing of the claims is provided above for the Examiner's convenience.

No claims have been amended and no new matter has been added.

Claims 1, 2, 6, 7, 10, and 11 stand rejected on prior art grounds under 35 U.S.C. §

103(a) as being unpatentable over Yutaka, et al. (U.S. Patent No. 5,664,163) in view of

Peaslee, et al. (U.S. Patent No. 5,265,203).

Claims 15-17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over

Yutaka in view of Peaslee, and in further view of Zhao, et al. (U.S. Patent No. 6,405,267).

Claims 18-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over

Yutaka in view of Peaslee, and in further view of Tidwell (U.S. Patent No. 6,437,789B1).

Claims 21-24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over

Yutaka in view of Peaslee, and in further view of Epard, et al. (U.S. Patent No. 5,241,625).

These rejections are respectfully traversed in the following discussion.

I.   THE CLAIMED INVENTION

Applicants' invention, as disclosed and claimed, relates to a data transferring

apparatus (and method) for transferring transfer packets each including one or more transfer

data as objectives of transfer from a first apparatus to a second apparatus, wherein each

transfer data includes commands indicating processes against a preliminarily assigned area.

In conventional devices, a raster interface is used to transfer image data, for

example, from a computer to a display apparatus, which requires a large amount of data.

However, when an ultra-high resolution display apparatus is used, there is a possibility that

the data transferring capacity of the communication channel between the computer and the

display apparatus will not be sufficient (e.g., se specification at page 1, lines 7-13).

The claimed invention, on the other hand, <u>solves the problems associated with such</u>

<u>an image data stream being transferred from a computer to an ultra high resolution display</u>

<u>apparatus</u> (e.g., see specification at page 1, lines 17-18, and page 2 lines 1-2).

For example, in an illustrative, non-limiting aspect of the invention as defined, for

example, in independent claim 1, a data transferring apparatus for transferring transfer

packets each including one or more transfer data as objectives of transfer from a first

apparatus to a second apparatus, the each transfer data including commands indicating

processes against a preliminarily assigned area, includes a scheduler for merging a plurality

of <u>drawing commands</u> meeting a certain requirement <u>and for translating the merged</u>

<u>drawing commands into a single drawing command, thereby **reducing a volume of the**</u>

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transfer data, and a communication controller for generating transfer packets each

including at least one of one or more the <u>plurality of drawing commands</u> whose amount is

within a certain predetermined range and one or more the merged <u>drawing commands</u>. The

communication controller transfers the generated transfer packets to the second apparatus.

Independent claim 2 recites somewhat similar features as claim 1 using "means-plus-

function" language under 35 U.S.C. § 112, sixth paragraph.

In other exemplary aspects of the invention as defined, for example, by independent

claims 7 and 11, a method includes merging a plurality of <u>drawing commands</u> meeting a

certain requirement <u>and translating the merged drawing commands into a single drawing

command, thereby</u> **reducing a volume of the transfer data**, generating transfer packets

each including at least one of one or more the <u>plurality of drawing commands</u> whose

amount is within a certain predetermined range and one or more the merged <u>drawing

commands</u>, and transferring the generated transfer packets to the second apparatus.

II.   THE PRIOR ART REJECTIONS

For the Examiner's convenience, Applicants incorporate herein by reference in their

entirety the traversal arguments set forth in the Amendment under 37 C.F.R. § 1.111 filed on

September 24, 2004, the Amendment under 37 C.F.R. § 1.116 filed on March 14, 2005, and

the Amendment under 37 C.F.R. § 1.111 filed on July 11, 2005.

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A.   Claims 1, 2, 6, 7, 10, and 11 stand rejected on prior art grounds under 35

U.S.C. § 103(a) as being unpatentable over Yutaka in view of Peaslee. Applicants

respectfully traverse this rejection for at least the following reasons.

Independent claims 1, 2, 7, and 11

The Examiner argues that it would be obvious to combine Yutaka and Peaslee to

arrive at the claimed invention (see Office Action at page 3, lines 12-14).

Applicants respectfully submit, however, that it would not have been obvious to

combine Yutaka and Peaslee to arrive at the claimed invention. Moreover, assuming

arguendo that a reasonable motivation existed for making the alleged combination,

Applicants submit that the resulting combination of Yutaka and Peaslee, either individually

or in combination, would not disclose or suggest all of the features of the claimed invention.

In the present Office Action, the Examiner alleges that Yutaka does disclose reducing

a volume of the transfer data by translating the merged drawing commands into a single

drawing command (see Office Action at page 2, paragraph 3).

Particularly, the Examiner alleges that "Yutaka describes translating the merged

drawing commands into a single drawing command, thereby reducing a volume of the

transfer data (Col. 2, lines 17-24; Col. 7, lines 1-13)" (see Office Action at pages 2 and 5,

paragraphs 3 and 12, respectively). However, Applicants respectfully disagree with the

Examiner's interpretation of Yutaka for the following reasons.

In contrast to the Examiner's position, Yutaka, in fact, describes putting multiple

drawing instructions together into a "drawing instruction *sequence*" (e.g., see Yutaka at

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Figure 6; see also column 7, lines 3-4), "in which the drawing instructions and the control

instructions are arranged in the order of drawing and control procedures is transferred to the

drawing device section" (e.g. see Yutaka at column 3, lines 31-34, column 16; lines 5-9).

However, in contrast to the Examiner's stated position, this arrangement is <u>NOT</u>

associated with a process to <u>translate multiple drawing commands into a single drawing</u>

<u>command</u>, as claimed.

In comparison, independent claim 1 recites a data transferring apparatus for

transferring transfer packets each including one or more transfer data as objectives of transfer

from a first apparatus to a second apparatus, each transfer data including commands

indicating processes against a preliminarily assigned area, the first apparatus including:

> *a scheduler for merging a plurality of drawing commands*
> *meeting a certain requirement and for translating said merged*
> *drawing commands into a single drawing command, thereby reducing*
> *a volume of said transfer data; and*
> *a communication controller for generating transfer packets*
> *each including at least one of one or more said plurality of drawing*
> *commands whose amount is within a certain predetermined range and*
> *one or more said merged drawing commands,*
> *said communication controller transferring said generated*
> *transfer packets to said second apparatus* (emphasis added).

The Examiner also alleges that Yutaka addresses inefficient transfers of drawing

instructions in the prior art (see Office Action at page 2, paragraph 3 and page 5, paragraph

12).

In contrast to the Examiner's position, Yutaka, in fact, argues that inefficient transfers

occur when a fixed-length packet is used to transfer drawing instructions (e.g., see Yutaka at

column 2, lines 11-29; see also Figures 21A-22). Yutaka, however, solves this issue by

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allowing control data to be transferred together with drawing data and by allowing DMA

transfers in a variable length (e.g., see Yutaka at column 2, lines 30-33).

Applicants submit that the merge operation in the present application is

fundamentally different from the transfer operation in Yutaka, which transfers drawing and

control data together. The transfer operation in Yutaka simply puts multiple data (or

instructions) together into a sequence of drawing instructions, but does NOT translate them

into a single drawing command.

For the foregoing reasons, Applicants respectfully submit that the Examiner has

mischaracterized the teachings of Yutaka, and thus, the Examiner's alleged modification of

Yutaka clearly does not establish the obviousness of the claimed invention. Moreover,

notwithstanding the Examiner's flawed interpretation of Yutaka, the claimed invention

clearly is fundamentally different from Yutaka.

Turning to the Peaslee reference, the Examiner alleges that in Peaslee "data is merged

in accordance with the mutual dependency of the instructions among themselves (Col. 5,

lines 50-59)" (see Office Action at numbered paragraph 12, at page 6). However, Applicants

respectfully disagree with the Examiner's interpretation of Peaslee.

According to Peaslee, "this involves scheduling (enabling) one or more of the six

controlled subsystems, when all required inputs are available for current operation, and

blocking (disabling) the controlled subsystem(s) when some other subsystem is utilizing its

(their) current output" (e.g., see Peaslee at column 5, lines 54-59). This means that the

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scheduler in Peaslee enables or disables subsystems, <u>instead of merging data</u>, in accordance with their input/output dependencies.

For example, if two subsystems use the same output, the scheduler enables only one of them at a time.

In comparison, the claimed invention can merge two drawing commands (e.g., a *"plurality of drawing commands"*) that affect the same drawing area <u>into one command</u> (e.g., *"a single drawing command"*), as recited, for example, in independent claim 1.

Thus, the present application clearly is fundamentally different from Peaslee and Peaslee does <u>not</u> make up for the deficiencies of Yutaka.

For the foregoing reasons, Applicants submit that Yutaka and Peaslee, either alone or in combination, do <u>not</u> disclose or suggest all of the features of independent claim 1.

Also, for somewhat similar reasons as those set forth above with respect to independent claim 1, Applicants submit that Yutaka and Peaslee, either alone or in combination, do <u>not</u> disclose or suggest all of the features of independent claims 2, 7 and 11.

For example, independent claim 2 recites a data transferring apparatus for transferring transfer packets each including one or more transfer data as objectives of transfer from a first apparatus to a second apparatus, each transfer data including commands indicating processes against a preliminarily assigned area, the first apparatus including:

> *<u>means for merging a plurality of drawing commands</u> meeting a certain requirement <u>and for translating said merged drawing commands into a single drawing command</u>, thereby <u>reducing a volume of said transfer data</u>;*

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> *means for generating transfer packets each including at least one of one or more said plurality of drawing commands whose amount is within a certain predetermined range and one or more said merged drawing commands; and*
> > *means for transferring said generated transfer packets to said second apparatus* (emphasis added).

That is, claim 2 defines the invention in "means-plus-function" language. Thus, claim 2 properly should be interpreted to cover the specific arrangement of elements disclosed in the specification and drawings (and then "reasonable" equivalents under 35 U.S.C. § 112, sixth paragraph).

In comparison, none of the cited references discloses or suggests any structure, equivalents thereof, or identity of function necessary for the claimed "*means for merging a plurality of drawing commands meeting a certain requirement and for translating said merged drawing commands into a single drawing command, thereby reducing a volume of said transfer data*", as recited in independent claim 2 and described in the specification and drawings.

Dependent claims 6 and 10

Applicants submit that dependent claims 6 and 10 also are patentable over the cited references by virtue of their respective dependencies from independent claims 2 and 7, as well as for the additional features recited therein.

For the foregoing reasons, Applicants respectfully submit that Yutaka and Peaslee, either alone or in combination, clearly do not disclose or suggest all of the features of claims

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1, 2, 6, 7, 10, and 11. Accordingly, Applicant respectfully requests that the Examiner

reconsider and withdraw the rejection of these claims.

B.   Claims 15-17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable

over Yutaka in view of Peaslee, and in further view of Zhao.

The Examiner alleges that Zhao combines drawing instructions that affect a same area

for a predetermined short period of time on a frame buffer (see Office Action at page 5, lines

4-5). Applicants respectfully disagree with the Examiner's position for at least the following

reasons.

That is, Zhao does not make up for the deficiencies of Yutaka and Peaslee.

For example, the actual combining operation of Zhao is completely different than the

"merging" or "combining" of the claimed invention, as exemplarily defined by claims 15-17.

Zhao uses the address portion of commands to select a sort buffer, which stores

commands for the same memory area in the order that the CPU originally wrote (e.g., see

Zhao at column 2, lines 43-59). Because of this command sorting, Zhao can use a bus that

combines multiple write operations to transfer data efficiently. Without using this command

sorting, the write combine operation may change the order of data transfers that affect the

same memory area, and hence, the write combine operation affects the consistency of the

output from the graphics device (e.g., see Zhao at column 2, lines 21-40).

In comparison, in the claimed invention, the merging or combining operation is

neither a sorting operation by the address nor a combining operation for efficient data

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transfers. Instead, in the claimed invention, the first apparatus analyzes a sequence of

graphics command and merges or changes them in such a way that that <u>the amount of the</u>

<u>data volume is reduced.</u>

The claimed invention is capable of providing such novel and unobvious features, for

example, because the first apparatus can have a command analysis routine (e.g., 340 in

Figure 6) in the present application.

On the other hand, in Zhao, the first apparatus does <u>not</u> have such a device. Thus,

Zhao can increase the data transfer efficiency through combining but actually does <u>not</u>

<u>reduce the amount of the data volume</u> to be transferred between the two apparatuses.

In other words, Zhao clearly does <u>not</u> <u>reduce the data volume,</u> according to the

claimed invention.

Moreover, as mentioned above, Yutaka and Peaslee also do <u>not</u> reduce the data

volume.

Thus, Applicants submit that it would <u>not</u> have been obvious to combine Yutaka,

Peaslee, and Zhao to arrive at the claimed invention. Further, even assuming *arguendo* that a

reasonable motivation existed for combining these references in the manner alleged,

Applicants submit that the resulting combination clearly would <u>not</u> disclose or suggest all of

the features of the claimed invention, as defined by claims 15-17.

Thus, Applicants respectfully submit that Zhao clearly does <u>not</u> make up for the

acknowledged deficiencies of Yutaka and Peaslee. Therefore, Applicants respectfully

request that the rejection of claims 15-17 be reconsidered and withdrawn.

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C.   <u>Claims 18-20</u> stand rejected under 35 U.S.C. § 103(a) as being unpatentable

over Yutaka in view of Peaslee, and in further view of Tidwell. For the following reasons,

Applicants respectfully traverse this rejection.

Applicants submit that Tidwell does <u>not</u> make up for the deficiencies of Yutaka and

Peaslee for several reasons.

For example, Tidwell describes that a dirty flag is set for a slot until data is written

back to the DRAM (e.g., see Tidwell at column 7, lines 61-64). This dirty flag indicates that

the slot contains pixels in an updated area on a frame memory.

In this regard, Tidwell teaches how to keep track of updated pixels as long as they can

fit in the cache memory, which is a small subset of the frame memory.

Furthermore, it can be viewed that each slot in the cache memory can merge the

results of multiple drawing commands, although the Examiner does not describe this aspect.

Applicants submit, however, that Tidwell does <u>not</u> analyze drawing (graphics)

commands <u>or translating them.</u>

Instead, Tidwell merely checks the address of pixels from a drawing engine (graphics

controller) along with flags for the corresponding slot to identify if the cache already has the

pixels.

Thus, for example, Tidwell needs to execute all graphics commands before merging

their outputs.

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The present application, on the other hand, analyzes the dependency between graphics

commands before executing them, so that it can omit executing some of them when they

have a certain dependency.

Furthermore, Tidwell sends only pixels (no graphics or drawing commands) from the

first apparatus to the second apparatus.

In comparison, according to the claimed invention, the first apparatus sends drawing

commands to the second apparatus (e.g., see claim 20).

Thus, the claimed invention clearly has the advantage of <u>reducing the volume of</u>

<u>transferred data</u>.

Moreover, Applicants submit that it would <u>not</u> have been obvious to combine Yutaka,

Peaslee, and Tidwell to arrive at the claimed invention, since Yutaka, Peaslee, and Tidwell,

either individually or in combination, which do <u>not</u> <u>reduce the amount of the data volume</u> to

be transferred between the two apparatuses.

Thus, Applicants respectfully submit that Yutaka, Peaslee, and Tidwell, either

individually or in combination, clearly do <u>not</u> disclose or suggest all of the features of the

claimed invention, as alleged by the Examiner. Accordingly, Applicants respectfully request

that the Examiner reconsider and withdraw this rejection.

D.   <u>Claims 21-24</u> stand rejected under 35 U.S.C. § 103(a) as being unpatentable

over Yutaka in view of Peaslee, and in further view of Epard.

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Epard discloses that two apparatuses are connected via a communication medium and that the two apparatuses have a drawing engine with a dedicated frame memory. In Epard, the source computer system translates graphics commands to another set of graphics commands from which the destination computer can generate an identical image (e.g., see Epard at column 64, lines 59-68). This translation is done by a command-by-command basis (e.g., see Epard at column 64, lines 59-68).

This means that, in Epard, the first apparatus does <u>not</u> merge graphics command <u>to reduce the amount of the data volume</u> that the first apparatus transmits to the second apparatus.

Thus, Epard alone is <u>not</u> capable of performing the intended use of the present application.

Moreover, even assuming *arguendo* that it would have been obvious to modify Yutaka and Peaslee with the system configuration of Epard, the resulting combination still would not reduce the amount of data volume, as claimed.

Indeed, as the Examiner acknowledges in the present Office Action, Yutaka also has nothing to do with <u>reducing the amount of data volume</u>, according to the claimed invention.

Therefore, the alleged combination would have nothing to do with reducing the amount of data volume. That is, Epard clearly would <u>not</u> make up for the deficiencies of Yutaka and Peaslee, which also do <u>not</u> disclose or suggest <u>reducing the amount of data volume</u>.

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For the foregoing reasons, Applicants respectfully submit that it would <u>not</u> have been

obvious to combine Yutaka, Peaslee, and Epard to arrive at the claimed invention.

Moreover, even assuming *arguendo* that it would have been obvious to combine these

references, as alleged, Applicants respectfully submit that the alleged combination of Yutaka,

Peaslee, and Epard would <u>not</u> disclose or suggest all of the features of the claimed invention,

as defined by claims 21-24.

Accordingly, Applicants respectfully request that the Examiner reconsider and

withdraw this rejection.

III.   CONCLUSION

In view of the foregoing, Applicants submit that claims 1-25, all of the claims

presently pending in the application, are patentably distinct over the prior art of record and

are in condition for allowance. The Examiner is respectfully requested to pass the above

application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance,

the Examiner is requested to contact the undersigned at the local telephone number listed

below to discuss any other changes deemed necessary in a telephonic or personal interview.
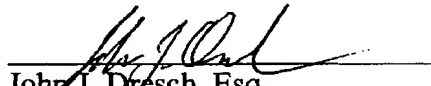
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The Commissioner is hereby authorized to charge any deficiency in fees or to credit

any overpayment in fees to Assignee's Deposit Account No. 50-0510.

Respectfully Submitted,

Date: _December 13, 2005_

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CERTIFICATE OF TRANSMISSION

I certify that I transmitted via facsimile to (571) 273-8300 the enclosed Request for

Reconsideration under 37 C.F.R. § 1.116 to Examiner Joni Hsu, Art Unit 2671, on December

13, 2005.

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